



[4910-13-P]

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 39**

**[Docket No. FAA-2012-0937; Directorate Identifier 2011-NM-270-AD]**

**RIN 2120-AA64**

**Airworthiness Directives; The Boeing Company Airplanes**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Notice of proposed rulemaking (NPRM).

**SUMMARY:** We propose to adopt a new airworthiness directive (AD) for certain The Boeing Company Model 737-800 series airplanes. This proposed AD was prompted by reports of early fatigue cracks at chem-mill areas on the crown skin panels. This proposed AD would require repetitive inspections for cracking of the fuselage skin along chem-mill steps at certain crown skin and shear wrinkle areas, and repair if necessary. We are proposing this AD to detect and correct fatigue cracking of the skin panel at the specified chem-mill step locations, which could result in rapid decompression of the airplane.

**DATES:** We must receive comments on this proposed AD by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**ADDRESSES:** You may send comments, using the procedures found in 14 CFR 11.43 and 11.45, by any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov>. Follow the instructions for submitting comments.
- Fax: 202-493-2251.
- Mail: U.S. Department of Transportation, Docket Operations, M-30, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590.

- Hand Delivery: Deliver to Mail address above between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

For service information identified in this proposed AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate; 1601 Lind Avenue SW, Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

### **Examining the AD Docket**

You may examine the AD docket on the Internet at <http://www.regulations.gov>; or in person at the Docket Management Facility between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. The AD docket contains this proposed AD, the regulatory evaluation, any comments received, and other information. The street address for the Docket Office (phone: 800-647-5527) is in the ADDRESSES section. Comments will be available in the AD docket shortly after receipt.

**FOR FURTHER INFORMATION CONTACT:** Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6447; fax: (425) 917-6590; email: [Wayne.Lockett@faa.gov](mailto:Wayne.Lockett@faa.gov).

### **SUPPLEMENTARY INFORMATION:**

#### **Comments Invited**

We invite you to send any written relevant data, views, or arguments about this proposal. Send your comments to an address listed under the ADDRESSES section. Include “Docket No. FAA-2012-0937; Directorate Identifier 2011-NM-270-AD” at the beginning of your comments. We specifically invite comments on the overall regulatory,

economic, environmental, and energy aspects of this proposed AD. We will consider all comments received by the closing date and may amend this proposed AD because of those comments.

We will post all comments we receive, without change, to <http://www.regulations.gov>, including any personal information you provide. We will also post a report summarizing each substantive verbal contact we receive about this proposed AD.

### **Discussion**

We received reports of early fatigue cracks near chem-mill areas on the crown skin panels of Model 737-300, -400, and -500 series airplanes. The cracks resulted from high stresses in the areas where chem-mill pockets are adjacent to non-chem-mill areas. Although we have not received any reports of this type of fuselage fatigue cracks on Model 737-600, -700, -700C, -800, -900, or -900ER series airplanes, a full-scale fatigue test article was inspected for skin cracks at similar structural details and two chem-mill cracks were found that occurred late in the testing program. This condition, if not detected and corrected, could result in rapid decompression of the airplane.

### **Relevant Service Information**

We reviewed Boeing Service Bulletin 737-53-1311, dated October 21, 2011, for Model 737-800 series airplanes. That service bulletin describes, among other things, procedures for doing repetitive external detailed inspections and external non-destructive inspections (medium frequency eddy current (MFEC), magneto optic imager (MOI), C-scan, or ultrasonic phased array (UTPA) inspections) of the fuselage skin at specified locations where chem-mill areas are adjacent to non-chem-mill areas at antenna and door bearstrap installations, and shear wrinkle areas at stringers 9 and 10 between stations 500E and 500G; and repairs if necessary.

Boeing Service Bulletin 737-53-1311, dated October 21, 2011, also describes procedures for installing modification doublers in certain locations, which involves an external detailed inspection and an external non-destructive (MFEC, MOI, C-scan, or UTPA) inspection for any cracking of the area to be modified prior to the doubler being placed on that area, a high frequency eddy current inspection of all existing holes for cracking as applicable, and contacting Boeing if necessary. That service bulletin also specifies that when a modification is accomplished, the repetitive inspection for the area under the modification is no longer necessary.

Boeing Service Bulletin 737-53-1311, dated October 21, 2011, specifies an initial compliance time of 43,000 total flight cycles, or 1,500 to 2,100 flight cycles (depending on group/configuration) after the original issue date of that service bulletin, whichever occurs later. That service bulletin specifies a repetitive interval not to exceed 1,500 flight cycles, 2,100 flight cycles, or 2,700 flight cycles depending on inspection method and group configuration.

For airplanes that have incorporated Boeing Business Jet (BBJ) lower cabin altitude supplemental type certificate (STC) ST010697SE, Boeing Service Bulletin 737-53-1311, dated October 21, 2011, specifies that all initial compliance times specified in flight cycles must be reduced to half of those specified in that service bulletin, and all repeat interval compliance times specified in flight cycles must be reduced to one-quarter of those specified in that service bulletin.

#### **FAA's Determination**

We are proposing this AD because we evaluated all the relevant information and determined the unsafe condition described previously is likely to exist or develop in other products of the same type design.

## **Proposed AD Requirements**

This proposed AD would require accomplishing the actions specified in the service information described previously, except as discussed under “Differences Between the Proposed AD and the Service Information.”

## **Similar Rulemaking**

The crown skin panels on Model 737-800 series airplanes are of a similar design to those on Model 737-300, -400, -500, -600, -700, -700C, -900, and -900ER series airplanes. Therefore, all these models may be subject to the identified unsafe condition. We are considering similar rulemaking for these additional models.

## **Differences Between the Proposed AD and the Service Information**

Boeing Service Bulletin 737-53-1311, dated October 21, 2011, specifies to contact the manufacturer for disposition of certain repair conditions, but this proposed AD would require repairing those conditions in one of the following ways:

- In accordance with a method that we approve; or
- Using data that meet the certification basis of the airplane, and that have been approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) whom we have authorized to make those findings.

Tables 3 and 4 in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, specify post-modification inspections at certain chem-mill step locations, which may be used in support of compliance with section 121.1109(c)(2) or 129.109(c)(2) of the Federal Aviation Regulations (14 CFR 121.1109(c)(2) or 129.109(c)(2)). However, this NPRM does not propose to require those post-modification inspections. This difference has been coordinated with Boeing.

## **Costs of Compliance**

We estimate that this proposed AD affects 441 airplanes of U.S. registry.

We estimate the following costs to comply with this proposed AD:

### Estimated costs

Action	Labor cost	Parts cost	Cost per product	Cost on U.S. operators
Inspection of chem-mill step locations	30 work-hours X \$85 per hour = \$2,550 per inspection cycle	None	\$2,550 per inspection cycle	\$1,124,550 per inspection cycle

We have received no definitive data that would enable us to provide cost estimates for the on-condition actions specified in this proposed AD.

### Authority for this Rulemaking

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII: Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, Part A, Subpart III, Section 44701: "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

### Regulatory Findings

We determined that this proposed AD would not have federalism implications under Executive Order 13132. This proposed AD would not have a substantial direct effect on the States, on the relationship between the national Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify this proposed regulation:

- (1) Is not a “significant regulatory action” under Executive Order 12866,
- (2) Is not a “significant rule” under the DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979),
- (3) Will not affect intrastate aviation in Alaska, and
- (4) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

**List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Incorporation by reference, Safety.

**The Proposed Amendment**

Accordingly, under the authority delegated to me by the Administrator, the FAA proposes to amend 14 CFR part 39 as follows:

**PART 39 - AIRWORTHINESS DIRECTIVES**

- 1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

**§ 39.13 [Amended]**

- 2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

**The Boeing Company:** Docket No. FAA-2012-0937; Directorate Identifier 2011-NM-270-AD.

**(a) Comments Due Date**

We must receive comments by [INSERT DATE 45 DAYS AFTER DATE OF PUBLICATION IN THE Federal Register].

**(b) Affected ADs**

None.

**(c) Applicability**

This AD applies to The Boeing Company Model 737-800 series airplanes, certificated in any category, as identified in Boeing Service Bulletin 737-53-1311, dated October 21, 2011.

**(d) Subject**

Joint Aircraft System Component (JASC)/Air Transport Association (ATA) of America Code 53; Fuselage.

**(e) Unsafe Condition**

This AD was prompted by reports of early fatigue cracks at chem-mill areas on the crown skin panels. We are issuing this AD to detect and correct fatigue cracking of the skin panel at the specified chem-mill step locations, which could result in rapid decompression of the airplane.

**(f) Compliance**

Comply with this AD within the compliance times specified, unless already done.

**(g) Inspections of Crown Skin Areas**

At the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, except as required by paragraph (k) of this AD: Do an external detailed inspection and an external non-destructive inspection (a medium frequency eddy current (MFEC), magneto optic imager (MOI), C-scan, or ultrasonic phased array (UTPA) inspection) for cracking in the fuselage skin along the chem-mill steps at certain locations specified in, and in accordance with, Boeing Service Bulletin 737-53-1311, dated October 21, 2011. Repeat the inspections thereafter at the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011.



**(h) Inspections of Shear Wrinkle Areas**

For Groups 2, 5, and 6 airplanes as identified in Boeing Service Bulletin 737-53-1311, dated October 21, 2011: At the applicable time specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, except as required by paragraph (k) of this AD, do an external detailed inspection and an external non-destructive inspection (MFEC, MOI, C-scan, or UTPA) for cracking in the fuselage skin along the chem-mill steps at certain shear wrinkle locations specified in, and in accordance with, Boeing Service Bulletin 737-53-1311, dated October 21, 2011. Repeat the inspections required by paragraph (h) of this AD thereafter at the applicable times specified in paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011.

**(i) Repairs**

If any cracking is found during any inspection required by paragraphs (g) and (h) of this AD, before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (m) of this AD. Accomplishing the repair approved in accordance with the procedures specified in paragraph (m) of this AD terminates the repetitive inspection requirement for that area under the repair only.

**(j) Optional Terminating Modification**

Modification of an inspection area specified in paragraph (g) of this AD, including doing an external detailed inspection and an external non-destructive inspection (MFEC, MOI, C-scan, or UTPA) for cracking of the area to be modified, and a high frequency eddy current inspection of all existing holes for cracking as applicable, in accordance with the Accomplishment Instructions of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, terminates the repetitive inspections required by paragraph (g) of this AD for that area only. If any cracking is found during any inspection

described by this paragraph, before further flight, repair the cracking using a method approved in accordance with the procedures specified in paragraph (m) of this AD.

**(k) Service Bulletin Exception**

Boeing Service Bulletin 737-53-1311, dated October 21, 2011, specifies compliance times “after the original issue date of this service bulletin.” However, this AD requires compliance within the specified compliance times “after the effective date of this AD.”

**(l) Post-Modification Inspections**

The post-modification inspections specified in Tables 3 and 4 of paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, are not required by this AD.

Note 1 to paragraph (l) of this AD: The damage tolerance inspections specified in Tables 3 and 4 of paragraph 1.E., “Compliance,” of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, may be used in support of compliance with section 121.1109(c)(2) or 129.109(c)(2) of the Federal Aviation Regulations (14 CFR 121.1109(c)(2) or 14 CFR 129.109(c)(2)). The actions specified in Part 5 of the Accomplishment Instructions and corresponding figures of Boeing Service Bulletin 737-53-1311, dated October 21, 2011, are not required by this AD.

**(m) Alternative Methods of Compliance (AMOCs)**

(1) The Manager, Seattle Aircraft Certification Office (ACO), FAA, has the authority to approve AMOCs for this AD, if requested using the procedures found in 14 CFR 39.19. In accordance with 14 CFR 39.19, send your request to your principal inspector or local Flight Standards District Office, as appropriate. If sending information directly to the manager of the ACO, send it to the attention of the person identified in the Related Information section of this AD. Information may be emailed to: [9-ANM-Seattle-ACO-AMOC-Requests@faa.gov](mailto:9-ANM-Seattle-ACO-AMOC-Requests@faa.gov).

(2) Before using any approved AMOC, notify your appropriate principal inspector, or lacking a principal inspector, the manager of the local flight standards district office/certificate holding district office.

(3) An AMOC that provides an acceptable level of safety may be used for any repair required by this AD if it is approved by the Boeing Commercial Airplanes Organization Designation Authorization (ODA) that has been authorized by the Manager, Seattle ACO, to make those findings. For a repair method to be approved, the repair must meet the certification basis of the airplane, and the approval must specifically refer to this AD.

**(n) Related Information**

(1) For more information about this AD, contact Wayne Lockett, Aerospace Engineer, Airframe Branch, ANM-120S, FAA, Seattle Aircraft Certification Office, 1601 Lind Avenue SW., Renton, Washington 98057-3356; phone: (425) 917-6447; fax: (425) 917-6590; email: [Wayne.Lockett@faa.gov](mailto:Wayne.Lockett@faa.gov).

(2) For service information identified in this AD, contact Boeing Commercial Airplanes, Attention: Data & Services Management, P. O. Box 3707, MC 2H-65, Seattle, WA 98124-2207; telephone 206-544-5000, extension 1; fax 206-766-5680; Internet <https://www.myboeingfleet.com>. You may review copies of the referenced service information at the FAA, Transport Airplane Directorate, 1601 Lind Avenue SW, Renton, Washington. For information on the availability of this material at the FAA, call 425-227-1221.

Issued in Renton, Washington, on September 4, 2012.

Ali Bahrami,  
Manager,  
Transport Airplane Directorate,  
Aircraft Certification Service.

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